REMARKS

Claims 1-10, 13-15, 19-27, 30-37, 39 and 45 stand rejected. Claims 11, 12, 16-18, 28, 29, 38, 40-44, 46 and 47 stand objected to but would be allowable if rewritten in independent form. Claim 22 has been amended, claim 26 has been canceled, and claim 30 has been rewritten in independent form. Accordingly, claims 1-25, 27-47 are now pending. The outstanding rejections are traversed as follows, and all claims are allowable. Reconsideration of the present application, as amended, and a prompt notice of allowance is therefore respectfully requested.

Claim Rejections- 35 U.S.C. §102

Claims 13-15 stand rejected as anticipated by the 1999 OIT slides. Even assuming, without admitting, that the OIT slides are prior art and enable what they teach, these rejections are improper and should be withdrawn. A claim is anticipated only if each and every element set forth is found, either expressly or inherently, in a single reference. MPEP 2131 Further, in order to establish that a feature is inherent, the evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill in the art." MPEP §2112, quoting In re Robertson, 49 USPQ2d 1949, 1950-51 (Fed Cir. 1999). In other words, it must be shown that the "allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." MPEP §2112, quoting Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). The Action fails to establish that the OIT slides expressly or inherently disclose all the elements of the rejected claims. Therefore, the rejections are improper and should be withdrawn.

Independent claim 13 recites exciting photoluminescence of a selected element with a *substantially continuous* light source, and also detecting the excited photoluminesce *while exciting* the photoluminescence. The schematic illustration in the 6th OIT slide under Task 3 depicts excitation by a laser *pulse*, which is described in the preceding slide as a "short" pulse of laser light. The OIT slides do not describe this short laser pulse as a substantially continuous light source nor do the slides describe detecting *while* exciting the photoluminescence. Rather, it appears that the OIT slides permit, if not expressly contemplate, sequential excitation and detection, negating any suggestion that this missing descriptive matter is inherently present in the OIT slides. Accordingly, at least because the Action has failed to establish that all the elements of the independent claim are disclosed in a single reference, the rejection is improper and should be withdrawn.

Like rejected dependent claims 14 and 15, claim 19 depends from claim 13 and includes all the elements of claim 13. Therefore, at least because the base claim is patentable, the rejections of claims 14, 15 and 19 are also improper and should be withdrawn.

Claim Rejections- 35 U.S.C. §103

Claims 39 and 45 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the OIT slides. The Action acknowledges that the slides do not disclose more than one detector in a detector assembly but contends that "[i]t would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate more than one detector in the apparatus of OIT because it would appear to involve no more than a mere duplication of parts. A person of ordinary skill in the art would have recognized the benefit in measuring light emitted from different depths in the glass at the same time instead of in series." (Action p. 3) However, claim

39 recites first and second *segmented* detectors and imaging optics adapted to image light from the excitation region onto the first and second detectors. The OIT schematic illustrates a single segmented detector with associated imaging optics, which, appropriately configured, would itself providing multiple depth measurements at the same time. Accordingly, one of skill in the art would have seen no reason to add a second segmented detector and to image light onto that second detector to achieve "the benefit of measuring light emitted from different depths ... at the same time instead of in series." That benefit would have already been realized, and therefore the asserted motivation fails.

Furthermore, the addition of a second segmented detector and the imaging of the light from the excitation region inventively provides for different measurements at the same depth location in the glass. The OIT slides teach measurement at a single frequency at each depth location and thus fail to achieve the synergism provided by imaging light from an excitation region onto multiple segmented detectors so that different measurements on the light can be achieved. One configuration for the claim 39 apparatus, which the Action has already recognized as being allowable, is to have the second detector measure the scattered excitation light (claim 40). As the imaging of light from the excitation onto a second segmented detector synergistically provides for this particular functionality, the apparatus of claim 39 inventively involves more than a "mere duplication of parts" relative to the schematic illustration of the OIT. See for example In re Harza 124 USPQ 378 (CPA 1960). Accordingly, because the asserted motivation to add a second segmented detector and to image light onto that second detector is improper and because more that a mere duplication of parts is involved, the rejections of claims 39 and 45 should be withdrawn.

Claims 1-10, 20-27 and 30-37 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bricker in view of OIT. These rejections are also traversed. Even assuming

the substitution of the OIT optical temperature probe into Bricker's system were proper, the combination fails to teach all the elements of the claims as required in order to establish a *prima facia* case of obviousness. Therefore, at least because the Action fails to establish a *prima facia* case of obviousness the rejections should be withdrawn.

Bricker discloses a glass processing system that includes a tunnel-type heating furnace 10 wherein glass sheets are conveyed through a preheat zone 12 into a gaseous zone 16 and then passed to a first quench zone 22. (Col. 4 line 59- col. 5 line 7; Figs. 1a and 1b) Top and bottom surface optical pyrometers 34 and 36 are provided in the gaseous zone 16 of the furnace 10 to sense the temperature of the top and bottom surfaces of the glass sheet respectively. (Col. 5, lines 51-54). An additional pyrometer 38 is located at the end of the first quench zone 22 so as to focus on the top surface of the sheets as they leave the first quench zone 22. (Col. 5, lines 54-57). Bricker describes utilizing the temperature information obtained from the pyrometers 34, 36, 38 to insure an adequate temper in the glass by controlling the heating burners. (Col. 10, lines 3-14) However, Bricker does not teach or suggest locating his pyrometers 34, 36, 38 in the quench zone nor using the temperature information to make adjustments in the quench zone.

In contrast to the detailed description of a glass processing system provided by Bricker, the OIT slides represent a brief annual update to an oversight committee of research by the present inventors related to development of an optical temperature probe for glass. This optical probe is based on the observation that the lifetime of excited photoluminescence decreases with increasing temperature. While the OIT slides express the *prediction* that the technique "can eventually be used for real time non-contact temperature measurement on many production lines," the slides do not describe such an implementation, they do not teach where on a glass production line such a technique would be implemented, and they do not disclose how any such

temperature information should be used. Furthermore, this brief update embodied in the slides was given under circumstances raising a question as to whether these slides actually constitute enabling prior art. However, assuming without admitting that these slides are prior art and enable what they purport to disclose, the rejections are still improper.

For example, independent claim 1 recites exciting photoluminescence in the glass by delivering an excitation beam *through a fluid* that is being used to change the temperature of the glass. The OIT slides do not describe sensing the temperature during quenching nor do they otherwise describe delivering the excitation beam through a fluid as claimed. As described above, Bricker does not describe locating his pyrometers in his quenching zone nor anywhere else such that temperature sensing would occur through a fluid used to change the glass temperature. Therefore, substituting the OIT temperature probe for the pyrometers of Bricker, as asserted, fails to yield the delivery of an excitation beam through a fluid used to change the temperature of the glass. Rather, it is Applicants' specification, not the cited references, that discloses, for example, sensing temperatures during quenching by delivery of an excitation beam through the quenching fluid. Accordingly, absent the improper effect of hindsight occasioned by having learned what the Applicants have disclosed, the asserted combination fails to teach all the elements of independent claim 1. Therefore, a *prima facia* case of obviousness has not been made and the rejection should be withdrawn.

Moreover, while neither OIT nor Bricker teaches use of a temperature sensor during glass quenching, the mechanism of action of the OIT sensor suggests ineffectiveness in such a dynamic environment as glass quenching. The OIT slides describe reliance on measuring the intensity of the excited luminescence as a function of time after a pulse excitation. If the excitation beam were to traverse a quenching fluid during quenching, some of the excitation

energy that would otherwise excite photoluminescence might be absorbed by the quenching fluid. This in turn would be expected to cause variations in the measured intensity of the excited photoluminescence through the course of a single quenching and/or as between successive quenchings. Accordingly, the traversal of a quenching fluid would be expected to introduce "noise" that would compromise the ability to accurately correlate detected fluorescence with glass temperature. As a result, properly considering the references as a whole, it is respectfully suggested that the OIT slides in fact teach away from their use during quenching.

Claim 30 has been rewritten in independent form and recites, among other things, a temperature sensing assembly having a detector wherein the detector is located at a quenching assembly and provides temperature profile information to the controller while glass is being quenched. As described above with respect to claim 1, neither Bricker nor the OIT slides teach a temperature sensor located at a quenching station. Further, properly considered as a whole, the OIT slides teach away from use is a dynamic environment such as during quenching, and the mere prediction of the slides that "this optical diagnostic can eventually be used for real time non-contact temperature measurement" does not overcome these deficiencies. Accordingly, at least because the asserted combination fails to properly teach a detector located at the quenching assembly or the provision of temperature profile information to a controller while glass is being quenched, the rejection of claim 30 should be withdrawn.

Independent claim 34 recites a method including sensing temperature profile information at a quenching station. For reasons discussed above, the asserted combination fails to teach all the elements of claim 34 and should likewise be withdrawn.

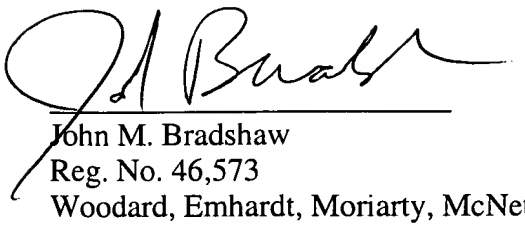
As amended, independent claim 22 recites control of the quenching assembly in response temperature measurements to adjust temperature of glass, as previously recited in dependent

claim 26 (now canceled). The Action applies improper hindsight analysis in asserting that it would have been obvious to modify Bricker to adjust quenching parameters according to the sensed temperature because to do so would have added a further degree of quality control. It is respectfully suggested that the issue is not whether the asserted modification provides an advantage over the art, but rather whether there is a proper teaching or suggestion to make the modification. For it is well settled that the teaching or suggestion to make the claimed combination required to establish a *prima facia* case of obviousness must be found in the prior art, not in Applicants' disclosure. MPEP 2143 citing In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). As discussed above, neither Bricker nor OIT describes adjusting a quenching assembly in response to measured glass temperatures. It is Applicants' Specification which describes adjusting the glass quenching with a controller in response to the sensed temperature information. Accordingly, withdrawal of the rejection is respectfully requested.

Besides the patentability of the base claims, additional reasons support the patentability of the rejected dependent claims. For example, claims 20-21 depend from claim 13 and define further inventions of the method of claim 13. As described above, the OIT slides fail to teach all the elements of claim 13, and the combination of OIT into Bricker fails to cure the deficiencies noted above. Accordingly, the rejection of claims 20 and 21 should also be withdrawn.

In view of the forgoing, reconsideration of the present application, as amended, is respectfully requested. All pending claims are patentable over the art, and the undersigned would welcome a telephone call to discuss any matter that would expedite prosecution of the present application.

Respectfully Submitted,



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